Please Amend the Claims as Follows.

Claims 1-119 (Cancelled).

120.(New) A communications system including:
a plurality of base station transceivers linked by a network over which the base station transceivers communicate;

a plurality of mobile transceivers adapted to communicate via the base station transceivers using macrodiversity; wherein

the mobile transceivers are further adapted to control allocation of system resources to enable communication.

121. (New) A communications system as claimed in claim 120 wherein the macrodiversity includes macrodiversity at a base station transceiver when receiving a signal from a mobile transceiver.

122. (New) A communications system as claimed in claim 120 wherein the macrodiversity includes macrodiversity at a mobile transceiver when receiving a signal from a base station transceiver.

123. (New) A communications system as claimed in claim 120 wherein the channel resources allocation controlled by the mobile transceiver includes the use of base station transceiver channels in a communications downlink between a base station transceiver and a mobile transceiver.

124. (New) A communications system as claimed in claim 120 wherein the channel resources allocation controlled by the mobile transceiver includes the use of base station transceivers in a communications downlink between base transceivers and a mobile transceiver.

125. (New) A communications system as claimed in claim 120 wherein the channel resources allocation controlled by the mobile transceiver includes the use of base station transceiver channels in a communications uplink between a base station transceiver and a mobile transceiver.

126. (New) A communications system as claimed in claim 120 wherein the channel resources allocation controlled by the mobile transceiver includes the use of base station transceivers in a communications uplink between base transceivers and a mobile transceiver.

127. (New) A communications system as claimed in claim 120 wherein the base station transceiver network is shared with other services.

128. (New) A communications system as claimed in claim 120 wherein the base station transceiver network includes a link to another base station transceiver network.

129. (New) A communication system as claimed in claim 121 wherein the mobile transceiver is adapted to use macrodiversity by sending a packet to a plurality of base station transceivers.

130. (New) A communications system as claimed in claim 129 wherein a base station transceiver or other network node is adapted to use macrodiversity when receiving a signal from a mobile transceiver by receiving packets from a plurality of base station transceivers that have received packets from the mobile transceiver, and combining the received packets using diversity combining.

131. (New) A communication system as claimed in claim 130 wherein the base station or other new work node is further adapted to use macrodiversity when receiving a signal from a mobile transceiver by forwarding the combined packet to at least one specified base station transceiver for transmission to another mobile transceiver.

132. (New) A communication system as claimed in claim 122 wherein the base station transceivers are adapted to use macrodiversity by sending a packet from a plurality of base station transceivers to a mobile transceiver.

133. (New) A communications system as claimed in claim 132 wherein a mobile transceiver is adapted to use macrodiversity when receiving a signal from a base station transceiver by receiving packets from a plurality of base station transceivers and diversity combining the packets.

134. (New) A communication system as claimed in claim 120 wherein mobile transceivers are adapted to allocate system resources by:

identifying uplink channel usage in the range of the mobile terminal,

identifying one or more spare uplink channels, and

transmitting over the one or identified channels without negotiation with the base station.

135. (New) A communication system as claimed in claim 134 wherein the mobile transceivers are further adapted to allocate system resources by identifying a spare uplink channel for transmission to minimise interference.

136. (New) A communication system as claimed in claim 120 wherein mobile transceivers are adapted to allocate system resources by:

identifying downlink channel usage in the range of the mobile terminal,

identifying one or more spare downlink channels, and

instructing a transmitting mobile terminal to utilise the identified channel(s) for transmission.

137. (New) A communication system as claimed in claim 136 wherein the mobile transceivers are further adapted to allocate system resources by identifying a spare downlink channel for transmission to minimise interference.

138. (New) A communication system as claimed in claim 134 wherein a transmitting mobile transceiver is adapted to negotiate the number of links with a receiving mobile transceiver.

139. (New) A communication system as claimed in claim 134 wherein the mobile transceivers are adapted to split the data to be transmitted into multiple streams and transmit each stream over a separate link.

140. (New) A communication system as claimed in claim 139 wherein a mobile transceiver receiving data transmitted over multiple streams is adapted to combine the multiple data streams.

141. (New) A communication system as claimed in claim 134 wherein the mobile transceivers are adapted to stop using a link if the amount of available channel resources reduces.

142. (New) A communication system as claimed in claim 120 wherein the mobile transceivers are adapted to transmit a data stream from a first mobile terminal to a second mobile terminal over a communication system by:

identifying one or more spare channels for the downlink to the second terminal,

separating the data stream into multiple portions according to the number of identified spare channels, and

transmitting the multiple portions over the spare channels to the second terminal.

143. (New) A communication system as claimed in claim 120 wherein before transmitting data packets, each packet including a synchronisation sequence and a

payload sequence, a mobile transceiver is adapted to provide a distinction between payload sequences and synchronisation sequences in the signal to be transmitted by scanning the payload sequence to determine any portions of the sequence that could be detected as a synchronisation sequence, introducing errors into the portions of the payload sequence, and wherein the introduced errors are within an error correction capability of a payload error correction code.

144. (New) A communications system as claimed in claim 120 further including at least one register that can communicate over the communication system and adapted to store at least a portion of the base station transceiver and time slot allocations of the mobile transceivers.

145. (New) A communication system as claimed in claim 144 wherein each register stores at least a portion of the base station transceiver and time slot allocations of each mobile transceiver.

146. (New) A communication system as claimed in claim 144 wherein a mobile transceiver uses a register to find the primary and secondary destination base station transceivers or a destination mobile transceiver.

147. (New) A communication system as claimed in claim 120 wherein the mobile transceivers use signal quality metrics to determine a link over which to transmit.

148. (New) A method of communicating over communication system including a plurality of mobile transceivers and a plurality of base station transceivers where the base station transceivers are linked together by a network including the steps of:

transmitting a signal in the form of packets from a transmitting mobile transceiver, each packet including information identifying a receiving mobile transceiver and at least one destination base station transceiver,

receiving the packet(s) at at least one receiving base station transceiver,

forwarding the packet(s) to the at least one destination base station transceiver,

the destination base station transceiver transmitting the packet(s) to the receiving mobile transceiver, and wherein

at least one of the receiving base station transceiver and the receiving mobile transceiver uses macrodiversity, and wherein

the mobile transceivers control allocation of system resources.

149. (New) A method of communicating over a communication system as claimed in claim 148 wherein the channel resources allocation controlled by the mobile transceiver includes the use of base station transceiver channels in a communications downlink between a base station transceiver and a mobile transceiver.

150. (New) A method of communicating over a communication system as claimed in claim 148 wherein the channel resources allocation controlled by the mobile transceiver includes the use of base station transceivers in a communications downlink between base transceivers and a mobile transceiver.

151. (New) A method of communicating over a communication system as claimed in claim 148 further including the step of the mobile transceiver using macrodiversity by sending a packet to a plurality of base station transceivers.

152. (New) A method of communicating over a communication system as claimed in claim 151 wherein a base station transceiver or other network node uses macrodiversity when receiving a signal from a mobile transceiver including the steps of receiving packets from a plurality of base station transceivers that have received packets from the mobile transceiver, and combining the received packets using diversity combining.

153. (New) A method of communicating over a communication system as claimed in claim 152 wherein the base station or other new work node uses macrodiversity when receiving a signal from a mobile transceiver including the step of forwarding the

combined packet to at least one specified base station transceiver for transmission to another mobile transceiver.

154. (New) A method of communicating over a communication system as claimed in claim 148 wherein the base station transceivers use macrodiversity including the step of sending a packet from a plurality of base station transceivers to a mobile transceiver.

155. (New) A method of communicating over a communication system as claimed in claim 154 wherein a mobile transceiver uses macrodiversity when receiving a signal from a base station transceiver including the step of receiving packets from a plurality of base station transceivers and diversity combining the packets.

156. (New) A method of communicating over a communication system as claimed in claim 154 wherein the base station transceivers use different channels to transmit the packet.

157. (New) A method of communicating over a communication system as claimed in claim 148 wherein the method used by mobile transceivers to allocate system resources includes:

identifying uplink channel usage in the range of the mobile terminal,

identifying one or more spare uplink channels, and

transmitting over the one or identified channels without negotiation with the base station.

158. (New) A method of communicating over a communication system as claimed in claim 157 wherein the method used by mobile transceivers to allocate system resources includes identifying a spare uplink channel for transmission to minimise interference.

159. (New) A method of communicating over a communication system as claimed in claim 148 wherein the method used by mobile transceivers to allocate system resources includes:

identifying downlink channel usage in the range of the mobile terminal,

identifying one or more spare downlink channels, and

instructing a transmitting mobile terminal to utilise the identified channel(s) for transmission.

160. (New) A method of communicating over a communication system as claimed in claim 159 wherein the method used by the mobile transceivers to allocate system resources includes identifying a spare downlink channel for transmission to minimise interference.

161. (New) A method of communicating over a communication system as claimed in claim 157 wherein the method used by mobile transceivers to allocate system resources includes negotiating the number of links with a receiving mobile transceiver.

162. (New) A method of communicating over a communication system as claimed in claim 157 wherein the method used by mobile transceivers to allocate system resources includes splitting data to be transmitted into multiple streams and transmit each stream over a separate link.

163. (New) A method of communicating over a communication system as claimed in claim 157 wherein the method used by mobile transceivers to allocate system resources includes stopping using a link if the amount of available channel resources reduces.

164. (New) A method of communicating over a communication system as claimed in claim 148 wherein the method used by mobile transceivers to transmit a data stream from a first mobile terminal to a second mobile terminal over a communication system includes:

identifying one or more spare channels for the downlink to the second terminal,

separating the data stream into multiple portions according to the number of identified spare channels, and

transmitting the multiple portions over the spare channels to the second terminal.

165. (New) A method of communicating over a communication system as claimed in claim 148 the method communicating includes using data packets each including a synchronisation sequence and a payload sequence, providing a distinction between payload sequences and synchronisation sequences in the signal to be transmitted by a mobile transceiver by scanning the payload sequence to determine any portions of the sequence that could be detected as a synchronisation sequence, introducing errors into the portions of the payload sequence, wherein the introduced errors are within an error correction capability of a payload error correction code.

166. (New) A method of communicating over a communication system as claimed in claim 148 further including at least one register arranged communicate over the communication system and adapted to store at least a portion of the base station transceiver and time slot allocations of the mobile transceivers.

167. (New) A method of communicating over a communication system as claimed in claim 166 wherein the method of allocating system resources includes the step of a mobile transceiver requesting information of available base station transceivers slots and channels.

168. (New) A method of communicating over a communication system as claimed in claim 148 wherein a mobile transceiver uses a register to find the primary and secondary destination base station transceivers or a destination mobile transceiver.

169. (New) A method of estimating a transition in a signal including the steps of:

sampling an incoming signal,

comparing the sample levels in a first group of samples with the sample levels in a second group of samples,

comparing the sample levels of samples within the first group of samples,

comparing the sample levels of samples within the second group of samples,

comparing the sample level of a middle sample with an adjacent middle sample where the middle samples are between the first group of samples and the second group of samples, and

estimating a transition point in the signal from the comparisons.

170. (New) A method of estimating a transition in a signal as claimed in claim 169 wherein the middle samples do not form part of the either the first group of samples or the second group of samples.

171. (New) A method of estimating a transition in a signal as claimed in claim 169 wherein a continuous sliding window of six samples is analysed, the first group of samples containing the first two samples, and the second group of samples containing the last two samples.

172. (New) A method of estimating a transition in a signal as claimed in claim 169 wherein a transition point is estimated to be between the middle samples if the middle samples are different, the samples in the first group are the same, the samples in the second group are the same and the samples in the first group are different to the samples in the second group.

173. (New) A circuit for detecting a transition in a signal, the circuit adapted to:

sample an incoming signal at at least twice the bit rate of the incoming signal,

compare the sample levels in a first group of samples with sample levels in a second group of samples,

compare sample levels of samples in the first group,

compare sample levels of samples in the second group,

compare the sample level of a middle sample with an adjacent middle sample where the middle samples are between the first and second groups, and

from the comparisons output an estimate of a transition point in the signal.

174. (New) A communication system that carries out synchronisation between communicating transceivers by:

sampling an incoming signal at at least twice the bit rate of the incoming signal,

comparing the sample levels in a first group of samples with sample levels in a second group of samples,

comparing sample levels of samples in the first group,

comparing sample levels of samples in the second group,

comparing the sample level of a middle sample with an adjacent middle sample where the middle samples are between the first and second groups, and

from the comparisons output an estimate of a transition point in the signal.

175. (New) A method for synchronising the clocks of a first node and a second node in a network including the steps of:

at a first time according to the clock of the first node sending a first synchronisation message from the first node to the second node,

at a second time according to the clock of the second node sending a second synchronisation message from the second node to the first node,

determining a first difference as the difference between the time on the first clock when the first message was sent and the time on the second clock when the first message was received,

determining a second difference as the difference between the time on the second clock then the second message was sent and the time on the first clock when the second message was received,

determining a clock error as the average of the difference between the first and second differences, and

adjusting the clock of either the first node or the second node by the clock error.

176. (New) A method for synchronising the clocks of a first node and a second node in a network as claimed in claim 175 wherein the clocks of both nodes are adjusted to reduce the clock error.

177. (New) A method for synchronising the clocks of a first node and a second node in a network as claimed in claim 175 further including the step of when the first node receives the second message the first node sends a third message to the second node including the time of receipt of the second message at the first node.

178. (New) A method for synchronising the clocks of a first node and a second node in a network as claimed in claim 175 further including the step of sending a request from one node to the other node containing the time of the one node and adjusting the time of the other node to that of the one node prior to the first node sending a first message.

179. (New) A network including a first node with a first clock and a second node with a second clock wherein to synchronise the first and second clocks:

the first node is adapted to send a first synchronisation message to the second node at a first time according to the clock of the first node,

the second node is adapted to send a second synchronisation message to the first node at a second time according to the clock of the second node,

one node is adapted to determine a first difference as the difference between the time on the first clock when the first message was sent and the time on the second clock when the first message was received,

one node is adapted to determine a second difference as the difference between the time on the second clock then the second message was sent and the time on the first clock when the second message was received,

one node is adapted to determine a clock error as the average of the difference between the first and second differences, and

adjusting the clock of either the first node or the second node by the clock error.

180. (New) A network including a first node with a first clock and a second node with a second clock as claimed in claim 179 wherein the first node is further adapted to send a third message to the second node including the time of receipt of the second message at the first node when the first node receives the second message the first node, and the second node is adapted to calculate the clock error.

181. (New) A network including a first node with a first clock and a second node with a second clock as claimed in claim 179 wherein one node is adapted to send a request to the other node containing the time of the one node and the other node is adapted to adjust the time of the clock of the other node to that of the one node prior to the first node sending a first message.

182. (New) A communication system utilising a local area network, the network including a first node with a first clock and a second node with a second clock wherein to synchronise the first and second clocks:

the first node is adapted to send a first synchronisation message to the second node at a first time according to the clock of the first node,

the second node is adapted to send a second synchronisation message to the first node at a second time according to the clock of the second node,

one node is adapted to determine a first difference as the difference between the time on the first clock when the first message was sent and the time on the second clock when the first message was received,

one node is adapted to determine a second difference as the difference between the time on the second clock then the second message was sent and the time on the first clock when the second message was received,

one node is adapted to determine a clock error as the average of the difference between the first and second differences, and

adjusting the clock of either the first node or the second node by the clock error.

183. (New) A communication system utilising a local area network, the network including a first node with a first clock and a second node with a second clock as claimed in claim 182 wherein the first node is further adapted to send a third message to the second node including the time of receipt of the second message at the first node when the first node receives the second message the first node, and the second node is adapted to calculate the clock error.

184. (New) A communication system utilising a local area network, the network including a first node with a first clock and a second node with a second clock as claimed in claim 182 wherein one node is adapted to send a request to the other node containing the time of the one node and the other node is adapted to adjust the time of the clock of the other node to that of the one node prior to the first node sending a first message.

185. (New) A method of allocating communication resources for a mobile terminal in a communication system that utilises a base station network including the steps of:

identifying uplink channel usage in the range of the mobile terminal,

identifying one or more spare uplink channels, and

transmitting over the one or identified channels without negotiation with the base station.

186. (New) A method of allocating communication resources for a mobile terminal in a communication system that utilises a base station network including the steps of:

identifying downlink channel usage in the range of the mobile terminal,

identifying one or more spare downlink channels, and

instruction a transmitting mobile terminal to utilise the identified channel(s) for transmission.

187. (New) A method of transmitting a data stream from a first mobile terminal to a second mobile terminal over a communication system including the steps of:

identifying one or more spare channels for the downlink to the second terminal,

separating the data stream into multiple portions according to the number of identified spare channels, and

transmitting the multiple portions over the spare channels to the second terminal.

188. (New) A communication system in which data is transmitted in packets wherein before transmitting data a transmitter provides a distinction between payload sequences and synchronisation sequences in the signal by scanning the payload sequence to determine any portions of the sequence that could be detected as a synchronisation sequence, introducing errors into the portions of the payload sequence, and wherein the introduced errors are within an error correction capability of a payload error correction code.

189. (New) A communication system as claimed in claim 188 wherein errors are introduced into the payload data by toggling binary data bits.

190. (New) A communication system including at least one register that can communicate over the communication system and adapted to store at least a portion of the network configuration information of the communication system.